Nez Perce National Historical Park
Natural Resource Brief

National Park Service
U.S. Department of the Interior

Soil Analysis at Weippe Prairie

Importance: A culturally and ecologically sensitive area

Camas (*Camassia quamash*) is a plant of considerable cultural and historical significance at Nez Perce NHP. Because of this, a camas monitoring protocol has been developed to target the existing site camas populations and has been designed to provide the park with information on the health of this focal species. As a contribution to the camas monitoring effort, under the direction of the National Park Service, University of Idaho soil scientists are studying the nature and condition of soils of the Weippe Prairie site. The overall goal of the project is to assess the nature and physical condition of the soils at the site. In Fall 2007, six sites representing a range in landscape position and camas lily density were described and sampled for a suite of chemical, physical, and mineralogical analyses. In addition, equipment was installed at all six sites to monitor seasonal changes in soil moisture content, soil temperature, and water table levels.

Objectives

- Characterize the important morphological, chemical, physical, and mineralogical properties of representative soils.
- Monitor temporal changes in soil water table levels and soil moisture content.
- Determine how the condition of the soils and available soil moisture potentially impact camas populations.

2011 Status

After four years of soil moisture data collection, results indicate that Weippe Prairie soils are primarily of alluvial (formed by sediment deposited by flowing water) and lacustrine (relating to a lake) origin. Because they occur on a relatively low-lying plain, they are often waterlogged during the winter and spring months. This is due, in part, to the presence of dense subsoil horizons that impede drainage and help create perched water tables. Hydrological monitoring indicates that all soils have water tables present for approximately 5-7 months per year. At the wettest sites, water tables are very near or above the soil surface for the majority of time during which the soils are saturated. In 2011 three new sites were added for more analysis. The results of this project provide valuable baseline information; however, they do not identify specific soil properties related to observed camas density differences. This suggests that differences in camas density at the Prairie may be due to factors such as disturbance and past management rather than soil-related factors.

Shallow wells were installed at each site to allow monitoring of water tables. A water table logger was then inserted into each well. Loggers were programmed to record water table levels every 12 hours.

Soil scientists observed two major differences among soils. The first difference is the relative position of the water table within the soil profile. The second difference was ponding of water.

Management Applications

- Provide site-specific, baseline information about soils of the Weippe Prairie site.
- Guide informed management strategies and contribute to a better understanding of the factors related to camas ecology in the region.

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